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Attachment to:

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MEMORANDUM FOR: Chief, Technical Services Group, NPIC
 ATTENTION : Chief, Technical Operations Staff, NPIC/TSG
 SUBJECT : Monthly Report for December 1972

A. SIGNIFICANT ITEMS OF INTEREST FOR DECEMBER 1972:

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1. Interactive Viewing Microscope [] This development is proceeding on schedule and will be delivered the first part of March 1973. The contractor is adding an optional rotating diffuser to further optimize the image and help reduce grain noise. This added work is being performed without increased cost to the government.

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2. Precise Measurement Study [] A breadboard model of a projected dot reticle system was demonstrated at NPIC. The breadboard demonstration helped convince PHD and RED that such a system would be beneficial on the []
 [] Stereocomparator.

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3. Semi-Automated Pointing Study [] The modifications for the breadboard semi-automated pointing device are virtually complete. Checkout and testing will begin shortly. The design concept for a semi-automated comparator is being formulated.

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4. ON Inspection Table [] Previously cited deficiencies have been corrected and the contractor has agreed to replace the rollers. RED has accepted the table.

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5. 120X Capability for Zoom [REDACTED] The 15X eyepieces passed the preacceptance tests at the contractor's facility and they have been turned over to ESD for T&E. The 3X objectives are undergoing final assembly and pre-acceptance tests are scheduled for January 1973.

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6. [REDACTED] Stereocomparator [REDACTED] A request is being prepared to modify [REDACTED] which is being fabricated with the projected dot reticle system demonstrated under the Precise Measurement Study contract.

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7. High Capacity Processor [REDACTED] This program has slipped several months (at no cost to the government) and the preacceptance tests [REDACTED] have been rescheduled ^{from} ~~for~~ January to late March 1973.

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8. 15X Binocular Magnifier [REDACTED] The optical bench tests were completed during this month. Final assembly is underway and the preaccep- tance inspection is scheduled for early January 1973.

9. EXRAND Technical Task Team Report (RED/DB). The fifth annual consolidated R&D project report (FY 1973 & 1974) was published and turned over to the Executive Secretary of EXRAND for distribution to the intelligence community.

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10. Development of High-Saturation Dyes for the [REDACTED] Process [REDACTED] The final report was received and is being evaluated. Preliminary appraisal indicates that definite improvement in print color intensities was achieved; however, the overall color balance leaves room for improvement.

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11. Contour Emulsion Modifications Study

A feasibility study on top coating an contour emulsion with a conventional duping emulsion was started. The purpose was to make use of the ability of the contour emulsion to control the print-out of any selected density by exposure and filtration with the duping emulsion giving the background scene at the same time. A number of techniques for stripping and transferring one emulsion on top of another were worked out and the overall feasibility of combining another emulsion with the contour emulsion was proven. Further work is planned.

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12. Math Modelling of Unconventional Emulsions

A tech review meeting was held covering the first nine weeks of this project. Technical progress was judged excellent, but the contractor appeared to be heading for fiscal trouble having spent 42% of the funds in approximately 20% of the schedule. The contractor was tasked to submit a revised spending plan for the remainder of the project and submit more frequent financial reports. A collection of chemical analysis instrumentation was delivered to this contractor as GFE.

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13. Simulative Photography

The final frames of color and black and white photography were received and reviewed. They will be used in the Color Difference Study and in special microscope evaluations. This material is excellent.

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14. Film Grain Noise Research and Film Grain Noise Research

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Both Project Approval Requests were disapproved by the DDI.

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[REDACTED]

16. Optical Power Spectrum - Image Quality Measurement

completed their technical effort and briefed

on the results of this contract.

17. System Design for Image Processing

has assumed the contract monitor responsibilities

regarding recommendations/changes to NPIC's Digital Image Laboratory.

18. Waste Residue Examination (RED/RB). Waste paper residue

from the paper destruction device was examined again this month. Large fragments of paper up to 1 1/2 inches long with printing thereon are still present.

19. Minimum Contact Densitometer (RED/RB). Evaluation of the Center's new densitometer was begun. Preliminary evaluation indicates the instrument is capable of a very high order of precision.

20. Digital Image Laboratory Modifications (RED/RB). Delivery of the 9-track tape transport and the computer interface has been delayed at least one more month due to late arrival of parts for the interface unit. This equipment is now scheduled for delivery to the RB in mid January.

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21. TID Modifications (RED/RB). It was determined that recent mechanical and optical improvements made in the TID have not improved the level of performance over that briefed to COMREX. Software improvements will be tried in the next few months.

22. Support to PHD (RED/RB). Set up optical bench for measurement of nodal points of a lens for [] personnel working on a PHD program. Assisted [] personnel in determining the nodal point of a lens.

24. Narrowband Color Viewer Evaluation [] (RED/SIS). Work continued on evaluating the capability of Zoom [] Microstereoscopes to transmit various wavelengths of illumination.

25. Ground Coverage Display System [] Evaluation continues on the [] Phase I report. Several basic issues must first be resolved before the Phase I report can be approved and work started on Phase II.

26. Closed Circuit TV System (RED/SAB). Purchase requests for the equipment have been forwarded to the DDI Planning Officer for consideration. The equipment on loan from ORD has been received []

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27. Materials Handling System Study [] Work is proceeding as

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planned on Phase I of the Materials Handling System Study. The survey ques-
tionnaires have been filled out by the PI's and returned to []
personnel for compilation and evaluation of the data. The PAR for Phase II
of the study has been compiled and forwarded to Chief, TSG for approval.

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28. Feasibility Study for Automated Image Assessment [] Further

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delays have been encountered in securing the necessary materials to be furnished

[] It now appears that the material will not be available before 1 February
1973. An extension of time is therefore necessary.

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30. Video Information Evaluation [] The draft final

report on this program has been accepted and sent to publications for repro-
duction.

B. MEETINGS, BRIEFINGS, ETC.

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1. [] Microstereoscope [] met

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with IEG and RED to discuss the possibility of modifying the new [] for PI use.

A standard [] will be loaned to NPIC for evaluation.

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2. Dynascope [] The contractor

demonstrated this aerial image projection system to RED personnel. Plans are
underway to purchase a commercially available system for evaluation by photo-
interpreters.

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3. Microspectrophotometer

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visited to inspect, test

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and discuss the microspectrophotometer. This device is not suitable for

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film.

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4. Non-Silver Films (RED/RB). RED/RB arranged for a briefing

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on Non-Silver Films and associated equipment. A company representative gave the briefing to representatives of all Center components.

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5. A TID demonstration was given on 1 December.

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6. The Meeting, Washington Hilton Hotel,

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4, 5, and 6 December. Attended Important papers were

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presented on imaging and display devices

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presented a paper on recent progress in magnetic bubble devices.

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7. Automated Exploitation Techniques On 6 December 1972 the Task

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Team met to consider candidate tasks for the proposed "no-cost" agreement.

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IEG/OD/TPB, attended. He is IEG's replacement The

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Task Team visited 13 December 1972, to review

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equipment capabilities and to observe demonstrations.

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8. Processing Facility (P/F) On 12 December visited

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a potential system integration contractor for the NPIC detachment at the processing facility. During December attended meetings

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and reviewed papers on digital mensuration, human factors support, a management control system, and other matters in support of the new system.

9. Microfilm Color Reproduction Film The operational test of the high resolution microfilm color reproduction film was held on 20 December 1972.

The test was very successful. There was very little loss in resolution, and the materials color fidelity in the reproduction images widely varied in color balance was outstanding. This test was witnessed by representatives of NPIC/TSG, NPIC/PSG, Further meetings are planned to discuss the future role this material will play in the intelligence community.

10. FY-73 R&D Program Review (In-House). On 8 December 1972

completed the FY-73 R&D Program Mid-Year Review.

C. D.O.'s, PROPOSALS, AND PARS

1. Photoscience Support A proposal was received and approved for the exploratory investigation of simultaneous, microscope viewing of a reflection interference phase image and a transmission density image. The objective is to assess the additional information which may be obtained from imagery using this technique compared with normal transmission viewing alone.

2. Colorimetric Image Correction. Preproposal discussion were held with concerning their support in this R&D program.

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3. [REDACTED] to discuss proposed Colorimetric Image Correction Program.

4. TID. This device will be used until early March 1973 to provide some experimental evaluation assistance to DIADC-6.

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Deputy Chief
Research & Engineering Division, NPIC/TSG

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